

- MELSHEIMER, F. E. 1853. Catalogue of the described Coleoptera of the United States. Washington. 174 pp.
- NEEDHAM, J. G., S. W. FROST, AND TOTHILL, B. H. 1928. Leaf-Mining Insects. The Williams and Wilkins Company, Baltimore. viii+ 351 pp.
- OLIVIER, A. G. 1808. Entomologie, ou histoire naturelle des insectes, avec leurs caracteres generiques et specifiques, leur description, leur synonymie, et leur figure enluminee. Paris.
- POOS, F. W. 1940. The Locust Leaf Miner as a Pest of Soybean. Journ. Econ. Ent. 35 (5): 742-745.
- POPENOE, E. A. 1877. Trans. Kansas Acad. Sci. 5:36.
- SANDERSON, M. W. 1951. A New Record and two New Species of North American Hispinae. Proc. Ent. Soc., Washington, vol. 53 (3): 160-163.
- SAY, T. 1823. Descriptions of Coleopterous insects collected in the late expedition to the Rocky Mountains Journ. Acad Nat. Sci., Philadelphia, 3: 403-462.
- SMITH, J. B. 1885. Some New Species of Hispini. Ent. American vol. 1: 94-95.
- SPAETH, F. 1937. Über die von Regierungsrat E. Reimoser in Argentinien und Paraguay 1907 and 1908 gesammelten Hispinen (Col. Chrysom.). Ann. Naturhist. Mus. Wien, 48: 143-166.
- THUNBERG, C. P. 1805. In Göttingen gelehrte Anzeiger. pp. 281-282.
- UHMANN, E. 1931. Hispinen aus den Museen für Tierkunde und Volkerkunde zu Dresden. 2. Teil. 32. Beitrag zur Kenntnis der Hispinen (Col. Chrys.). Stettiner Ent. Zeitung. 92: 219-226.
- . 1938. Amerikanische Hispinen aus dem Zoologischen Museum der Universität Berlin. VII. Teil: Die Gattung *Xenochalepus* Weise. 70. Beitrag zur Kenntnis der Hispinen. Revista. Ent. 8: 420-440.
- . 1957. Coleopterorum Catalogus, pars 35, fasc. 1: vii+ 153 pp.
- . 1964. Coleopterorum Catalogus, Supplementa, pars 35, fasc. 3: v+ 490 pp.
- WEISE, J. 1910. Zweiter Beitrag zur Kenntnis der Hispinen. Verh. Naturf. Ver. Brunn, 48: 115-162.
- . 1911. (a). Coleopterorum Catalogus, Chrysomelidae: Hispinae, pars 35: 94 pp.
- . 1911 (b). In Wytsman, Genera insectorum, Coleoptera, fam. Chrysomelidae: subfam. Hispinae, fasc. 125: 124 pp.
- . 1911 (c). Neue Chrysomeliden. Ann. Soc. Ent. Belgique, 55: 166-175.
- WILCOX, J. A. 1954. Leaf Beetles of Ohio (Chrysomelidae: Coleopt.). Ohio Biol. Sur. Bull. 43, 8 (3): 353-506.

Book Review

Curculionidae Subfamily Apioninae of North and Central America with Reviews of The World Genera of Apioninae and World Subgenera of Apion Herbst (Coleoptera). By David A. Kissinger, 1968, Taxonomic Publications, So. Lancaster, Mass., 559 pages, \$20.00, cloth.

In this volume Kissinger presents a definitive study of the weevil subfamily Apioninae. 221 pages are devoted to illustrations, graphs, and maps, there being more than 2700 individual illustrations. In addition to the principal material on the North and Central America members of the genus *Apion*, the world genera of Apioninae (30) are reviewed with a key to them. Also four new genera are described.

To anyone who has studied it or has tried to identify its members, the genus *Apion* at once seems to be a difficult and large one composed of similar forms. Kissinger's detailed work should make identification of specimens much easier because for each of the 317 North and Central American species he describes and illustrates significant external characteristics along with the

male genitalia. Also detailed distribution records are given for each species as well as maps for many. Biological data are also presented for the various species.

Taxonomically, this is a major work, the type of which is greatly needed. This excellent monograph should be a must for anyone interested in the identification of beetles. N.M.D.

Anomalous Antennae in the Cantharidae (Coleoptera)¹

KENNETH M. FENDER

Linfield Research Institute, McMinnville, Oregon

The normal antennae of most of the genera of the Cantharidae in North America are filiform with all but the basal three segments similar in size and shape.

There is, in the collection of the University of California at Davis, California, a specimen of *Podabrus ambiguus* Fall in which the left antenna is grossly misshapen (fig. 1). The fourth and fifth segments are noticeably thicker than the same segments on the right antenna. The sixth segment is vastly enlarged and podiform. Arising from the heel of the foot-shaped segment is an antennule of four malformed segments, the basal one of which is triangular, the rest filiform but contorted. From the toe of the foot-shaped sixth segment arises the nearly normal apical five segments. This specimen was collected at Davis, California, April 3, 1947 by E. Schlinger.

In the collection of the California Department of Agriculture in Sacramento, is a male of *Cantharis americana* Pic in which the right antenna is somewhat similarly split. The sixth and seventh segments are fused and apically expanded into a large, somewhat compressed, cone. Two antennules arise from the distal margin of this cone, each composed of four moderately normal segments. This specimen was collected at Rutherford, Napa County, California, July 20, 1959 by T. R. Haig.

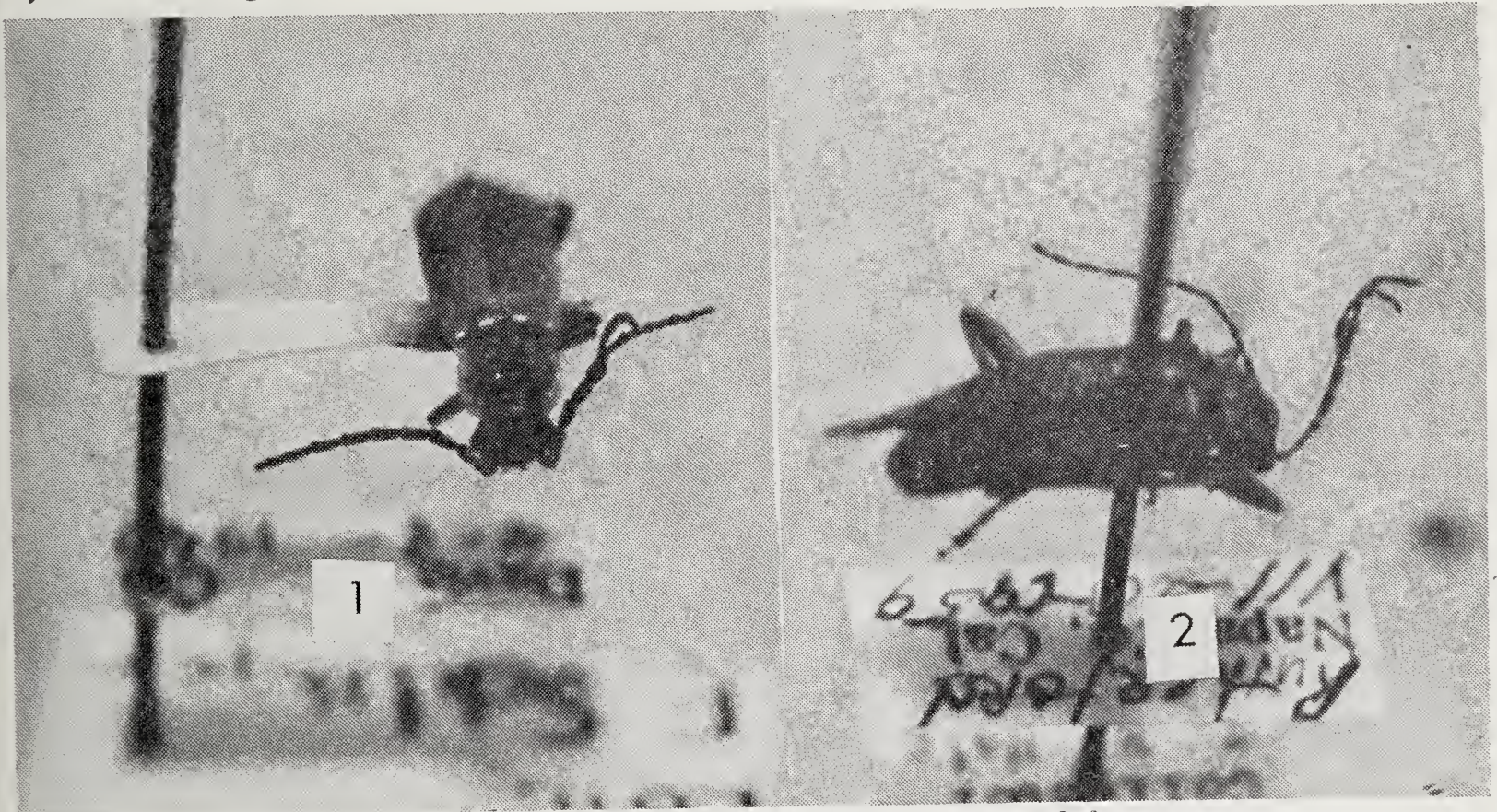


FIGURE 1. *Podabrus ambiguus* Fall with anomalous left antenna.

FIGURE 2. *Cantharis americana* Pic with anomalous right antenna.

¹This study was supported by National Science Foundation grant No. GB-6283X.